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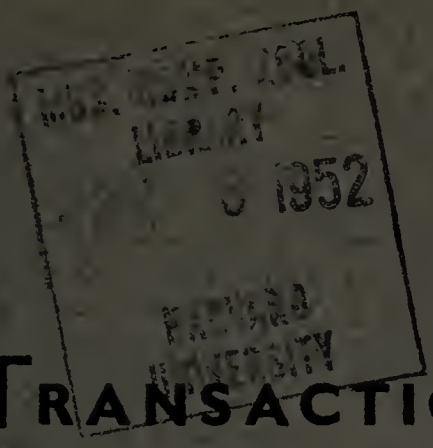

TRANSACTIONS

OF THE

SOCIETY FOR BRITISH ENTOMOLOGY

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TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

VOL. 11 22ND AUGUST, 1951 PART 1

THE PROBLEM OF STABILITY IN SPECIFIC NOMENCLATURE, WITH SPECIAL REFERENCE TO CASES WHERE TYPE MATERIAL IS NO LONGER IN EXISTENCE*

By

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(Secretary to the International Commission on Zoological Nomenclature)

In the early years after the adoption of the *Règles Internationales de la Nomenclature Zoologique* by the Fifth International Congress of Zoology at Berlin in 1901, it was widely believed that a consistent application of the Law of Priority—which constituted the keystone of that Code—would within a measurable period of time lead to absolute stability in nomenclature. As the years passed and bibliographical research continued to unearth overlooked names and, in the case of generic names, overlooked type selections, which had priority over established names and type selections which had been universally accepted for many decades, more and more zoologists became impatient of the constant name-changing which the strict application of the Law of Priority was leading to. It was in response to a widely voiced demand that at Monaco in 1913 the International Congress of Zoology conferred upon the International Commission on Zoological Nomenclature plenary powers to suspend the normal operation of the *Règles* in those cases where it was satisfied that their strict application would lead to greater confusion than uniformity. At the same time the Congress established an *Official List of Generic Names in Zoology* for the purpose of promoting uniformity and stability in generic nomenclature. This *Official List* was placed in the charge of the International Commission which was directed to foster and develop it by all the means at its disposal.

For some time after the Monaco Congress, however, international

* An Address delivered to the Seventh Annual Congress of British Entomologists, London, 22nd June, 1951.

action in the field of zoological nomenclature was very restricted—at first owing to the interruption caused by the 1914-1918 war, and subsequently owing to a certain diffidence on the part of the Commission in the exercise of its newly granted plenary powers, a diffidence attributable in the main to the disproportionate influence exercised by some of the older and more conservative zoologists. In the latter part of the inter-war period activity was further slowed down by the disputes which arose after the Padua Congress of 1930, by the illness and resignation of the Secretary and by the inevitable dislocation caused by the need to transfer the headquarters of the Commission (from Washington, D.C., to London) on the election of a new Secretary. This change of headquarters, with its accompanying reorganization, was barely complete when a further interruption was caused by the outbreak of the Second World War of 1939-1945.

When the Commission met for the first time after the war during the first post-war International Congress of Zoology held in Paris in 1948, a definite change in attitude, both in the Congress and in the Commission itself, was clearly evident towards the problem of stability in nomenclature. This was partly the effect of a further period of experience of the nomenclatorial disturbance and havoc to which the unbridled application of the Law of Priority inevitably led; in part also it was the result of the death of some of the older adherents of the Law of Priority and the difference in outlook of the succeeding generation, to which nomenclature was only one of a number of tools needed for taxonomic work, its utility being judged by the extent to which it contributed to, or hindered, the attainment of, the stability in nomenclature needed by the taxonomist. This change of attitude led to a unanimous demand from the zoologists present at the Congress that immediate steps should be taken to put an end to further unnecessary name-changing resulting from purely technical nomenclatorial reasons. In response to this demand the Commission recommended, and the Congress decided in favour of a strengthening of the instruments for promoting stability originally established in 1913 but which, for the reasons already explained, had lain relatively unused. While fully as anxious as the general body of the Congress to promote stability in nomenclature, the Commission did not go as far in this direction as many members of the Congress clearly desired, for it realized that even the degree of advance then recommended might come as a shock to conservative elements not represented at the Congress and it judged that the general interest would be best served by providing one further period for reflection and discussion before coming finally to grips with the problem of securing a stable nomenclature. The Commission accordingly recommended that

consideration of the more far-reaching proposals put forward to this end by the general body of the Congress should be deferred until the next (Copenhagen) Congress to be held in 1953. This recommendation was acquiesced in by the Paris Congress, subject to the condition that the whole question should be thoroughly examined during the ensuing inter-Congress period and that a Report containing definite proposals of a more comprehensive character should be prepared for consideration by the Copenhagen Congress.

In spite of the limitations deliberately sought by the Commission in the hope of securing the widest possible basis of agreement at the next Congress for the proposals for stabilization of nomenclature then to be submitted, the advances unanimously approved by the Paris Congress were very substantial. In the first place, the Plenary Powers Resolution of 1913 was simplified, strengthened and incorporated in the *Règles* themselves. This last decision was of particular importance, for, by making it clear that the plenary powers provision was as much a part of the international system of zoological nomenclature as the Law of Priority itself, the Congress destroyed at a single blow the fears of those zoologists (not represented at the Congress) that a more extensive use of those powers might ultimately undermine the Code itself. That any such fear was totally groundless was further underlined by the decision of the Paris Congress to include in the *Règles*, as a Schedule, a list of all names in respect of which the plenary powers were used, thus directly incorporating every decision taken under the plenary powers into the Code itself. The second important step taken by the Congress to promote nomenclatorial stability was the decision that, once a name had been placed upon the *Official List of Generic Names in Zoology*, it was not later to be discarded or used in some different sense, even if it were found to have been placed on the *List* in error, unless the Commission, after having had the facts of the case laid before it, should so direct.

Prior to the Paris Congress, such attempts as had been made to mitigate the worst effects of the retroactive application of the Law of Priority had been directed almost exclusively to the problem of stability of generic names. At the Paris Congress, for the first time, attention was devoted to the problem, at once more difficult and more fundamental, of stability of specific nomenclature. As a first step in this direction, it was decided to establish an *Official List of Specific Trivial Names in Zoology* with the same status as that then accorded to the *Official List of Generic Names in Zoology*. At the same time it was decided to place on this new *Official List* the trivial name of the type species of every nominal genus, the name of which was placed on the *Official List of Generic Names* (except where such a name was not, both objectively and subjectively, the oldest

available name for the species concerned, it being laid down that in such a case the oldest available trivial name should be placed on the *Official List* in place of the trivial name of the nominal species that was actually the type species of the genus concerned).

The establishment of this *Official List* could not, however, do more than provide a formal contribution to the problem of securing stability in specific nomenclature unless steps were taken to establish firmly to which taxonomic species each trivial name placed on the *Official List* was to apply, in other words, unless means were provided for determining the type specimen (or its equivalent) of each nominal species, the trivial name of which was placed on the foregoing *Official List*. Accordingly, a determined effort was made both by the Commission and by the Congress, to provide a satisfactory solution for this fundamental nomenclatorial problem.

In this matter the Commission recommended, and the Congress adopted, two important clarifying measures. The first was the elaboration of Article 31, which in its then existing form provided only that the Rules in Article 30 for the subdivision of a genus (i.e. for determining its type species) should apply, so far as applicable, to the subdivision of a species. In fact, however, many of the Rules in Article 30 were entirely inappropriate for subdividing a composite nominal species or for determining the single specimen by which any nominal species is to be identified. In order to overcome this particular difficulty, the Congress decided that in future this Article should be spelt out in detail. At the same time the Congress decided expressly to recognize in the Code three kinds of type specimen, namely the holotype, the syntype and the lectotype. The revised Article 31 will set out a definite procedure for selecting a lectotype (or a figure to represent the lectotype) where syntype material and/or figures are available. In all such cases the identity of the taxonomic unit to which a given specific name applies is clearly settled. Problems are likely to arise only in cases where type material is no longer in existence or is in too bad a state of preservation to permit of the definite identification of the species concerned. Even in such cases there is often general agreement as to the identity of the taxonomic species represented by the nominal species concerned. In such cases, all that is necessary when the trivial name in question is placed on the *Official List* is to add a reference to a good published figure or modern description of the taxonomic species concerned, the citation of such a reference serving firmly to attach to that species the trivial name in question. The cases which still remain to be dealt with are those where the interpretation of a given nominal species is a matter of doubt and in consequence it is doubtful to what taxonomic species the trivial name in question should be applied.

The Paris Congress introduced certain measures for dealing with such cases. First, it was decided to add a provision to the *Règles* prescribing a method for overcoming the confusion and uncertainty arising where some specialists claimed to be able to recognize a given nominal species and accordingly applied the trivial name of that nominal to the taxonomic species so recognized, while other specialists were unable to recognize the taxonomic species represented by the nominal species in question and accordingly treated the name of that nominal species as a *nomen dubium*. The Congress decided that in future every such case is to be referred to the International Commission for decision.

In the form in which the Commission's plenary powers were granted in 1913 and in which they remained until 1948, those powers could be used by the Commission only when that body was satisfied that the strict application of the *Règles* would lead to confusion rather than uniformity. But, as taxonomic workers well know, confusion and nomenclatorial instability can arise just as easily where the question at issue is not whether the *Règles* should be strictly applied but how the *Règles* should, in fact, be applied, if they are to be strictly interpreted. Such cases constitute a special class of *nomen dubium*, in which there is disagreement as to whether a given name should be applied to species "A" or to species "B" although the name is universally applied to one or other of those species. In order to equip the Commission for settling this type of difficulty, the Paris Congress extended the plenary powers to cover cases where confusion and instability arise solely through doubt as to how the *Règles* should be applied in particular cases.

These new powers have been used by the Commission in several cases, for example, in relation to the names *Papilio iris* Linnaeus, 1758 (the name commonly applied to the British Purple Emperor Butterfly) and *Papilio plexippus* Linnaeus, 1758 (the name commonly applied to the American Danaid butterfly, known as the Monarch or Milkweed butterfly, which occasionally occurs in Britain as a migrant). In each of these cases the Commission made use of the extension of its plenary powers to give valid force, in the first case, to the universal practice of systematists, in the second case, to the use adopted by the majority of interested workers. In these cases the Commission directed that the nominal species in question was to be interpreted by reference to a specified published plate, the trivial name hitherto in dispute to be applied in future only to the species so figured. In the case of the trivial name *iris* Linnaeus, the Commission directed that that name should in future be applied to the British Purple Emperor as figured in South's *British Butterflies*. In this case the decision taken by the Commission has worked perfectly smoothly both at the species level and at the

subspecies level, for the specimen figured by South was a British specimen and England ("Anglia") was one of the localities cited by Linnaeus in his original description. In the case of the name *plexippus* Linnaeus, the Commission selected a figure given in Holland's Butterfly Book as the figure by which the Monarch butterfly was in future to be identified, that figure being chosen for this purpose as having been published in a well-known and easily accessible work of reference. Unfortunately, as was subsequently pointed out by certain American entomologists, Holland's figure does not represent a North American specimen (i.e. a specimen of the North American subspecies) but a specimen belonging to a more Southern subspecies. Noone disputes that Holland's figure represents the species now known as the Monarch, but at the subspecies level the selection of Holland's figure was certainly unfortunate; Linnaeus stated in 1758 that this species came from "America septentrionalis" and later in the *Mus. Lud. Ulr.* he stated that he had received his specimens from the Swedish naturalist Peter Kalm who had collected for him in the neighbourhood of Philadelphia. This Northern subspecies has accordingly always been treated as the nominotypical subspecies of *Danaus plexippus* (Linnaeus) by all entomologists who identified the *plexippus* of Linnaeus with the Monarch, and it was the intention of the Commission, when taking the foregoing decision, to give valid force to this practice. It would not be suitable to pursue this case further on the present occasion, for it will shortly be reviewed by the Commission. It is useful, however, to note that this episode is of value in that it has served to draw attention to the desirability, in cases where the plenary powers are used for the purposes discussed above, of selecting, as the standard reference figure, a figure of a specimen which belongs to the nominotypical subspecies of the species in question and, if possible, a specimen of that subspecies taken in the original type locality.

The above case brings out very clearly the importance, from the nomenclatorial standpoint, of the type locality of any given nominal species. In the case of polytypic species, the type locality is in fact a part—and a very important part—of the definition of the nominotypical subspecies. For many of the older names, either no type locality is given or the indication supplied (such as "Habitat in pratis Europae" or "Habitat in Indiis") is so vague as to be perfectly useless, while there are numerous cases where the type locality given is clearly erroneous. It is, therefore, a serious blemish in the *Règles* that they contain no provisions for dealing with this subject. Taxonomists have attempted to overcome this difficulty by themselves specifying "restricted" type localities, but such action, not being based on any provision in the *Règles*, has no binding force on

other workers and is open to challenge—and frequently has been challenged—by later workers. Clearly one of the prerequisites for securing stability in nomenclature at the species level is the incorporation in the *Règles* of comprehensive provisions for the determination, selection, and restriction of type localities and for the substitution of correct type localities in cases where the locality originally cited is incorrect. Suggestions for dealing with this problem on the lines of existing practice have been received by the Commission from various quarters and will be published at an early date in the Commission's *Bulletin of Zoological Nomenclature*. It is hoped that this will elicit further comments on this complicated question and thus secure that this problem shall have been subject to the closest possible examination prior to the meeting at Copenhagen in 1953, when it is proposed that the Congress shall be asked to take decisions on this question.

A good description, a good figure and a closely defined type locality (including, in the case of fossil species, a clear indication of the stratigraphical zone in which the species was discovered) are all of the utmost value in determining the taxonomic species represented by a given nominal species and therefore in settling to what species a given trivial name is properly applicable. In many cases, however, these are not sufficient to secure an identification which is beyond challenge: the descriptions of many species—indeed, the descriptions, probably, of the majority of all described species—are synthetic in the sense that they are not based exclusively upon a single specimen but take account of the whole syntype material or, as the case may be, of the material treated by the original author as paratypic; moreover, many descriptions which must be regarded as good according to the standards of the time at which they were written, fail to deal adequately with characters, on which—as later work shows—information is essential for distinguishing the species described from closely allied species, then either unknown or unrecognized. In this respect also many figures that were justly regarded as good at the time of publication, prove later insufficient to provide an unchallengeable identification. Even a good type locality cannot suffice to overcome defects of the kind described above, for often more than one of the species to which a given description may apply occur together—or at least the possibility of it being found that they so do cannot be excluded. In all cases of this kind doubts can never be laid at rest unless there exists a single specimen, irrevocably linked to the name in question, the examination of which can show to which of two or more species the name in question properly applies. This essential need is met in the case of every nominal species for which (1) the holotype is preserved, or (2) a lectotype has been (or can be) selected from the

original syntype material. A position of great difficulty arises where the holotype has been lost or where, in the absence of a holotype, there is no means of selecting a lectotype owing to the original syntypes having disappeared. It is to overcome the otherwise insuperable obstacles to further progress that some zoologists and palaeontologists have resorted to the device of selecting some specimen as the "neotype" of the species in question.

At the present time the *Règles* do not recognize the concept of a "neotype" and accordingly, from the nomenclatorial standpoint, the action of an author in selecting a "neotype" has no binding force of any kind on subsequent workers and is incapable, therefore, of making any contribution to the stabilization of the name in question. This has led to a widespread and increasing demand from specialists in many groups, particularly in the invertebrate groups and among palaeontologists for the official recognition of neotypes by the insertion in the *Règles* of provisions in regard thereto. A tentative application on this subject was published in the *Bulletin of Zoological Nomenclature* during the war, in the light of which preliminary consideration was given to the whole problem by the Commission at its meeting held in Paris in 1948. On that occasion the Commission and the Congress, while recognizing that this was an extremely important subject and one which deserved the most serious and sympathetic consideration, felt that it was also one which presented features which would need to be handled with exceptional care. The Congress accordingly remitted the whole subject to the Secretary to the Commission, who was asked to make a thorough survey of the issues involved, in conjunction with interested specialists, and to submit a comprehensive Report, with recommendations, for consideration at the Copenhagen meeting in 1953.

From the consultations which have already taken place it seems to be widely agreed that some recognition of neotypes is desirable but that it is essential that this recognition should be accompanied by, and should be subject to, safeguards adequate to ward against the risks of abuse to which the neotype system might easily give rise. It is therefore primarily around the nature and extent of the safeguards to be imposed that discussion has mainly centred. The first and most obvious risk that must be warded against if neotypes are to be recognized is the danger of commercial exploitation. To this end it seems essential that the new provision should stipulate that no specimen is to be eligible for selection as a neotype unless it is the property of, or, on being so selected, is presented to, or placed on permanent loan in, a museum or other public institution. There is general agreement also that some arrangement should be made to secure that the museums or other institutions eligible for

the foregoing purpose shall be limited to those where (1) there are reasonable grounds for believing that specimens selected as neotypes will be carefully preserved, and (2) adequate facilities will be provided to specialists for the study of the neotypes in question. Second, it would be clearly essential to provide that no specimen is to be recognized as a neotype unless adequate particulars (the nature of which would need to be specified in the new provision) were published announcing the selection of the specimen in question as a neotype, together with a description and other details regarding that specimen. In this respect the selection of a neotype would be subject to conditions similar to those already prescribed for the selection of a lectotype. While the actual specimen selected as a neotype would form the basis upon which in the last resort the identity of the species to which a given name is to apply would be determined, it would clearly be desirable that the provision in the *Règles* recognizing neotypes should include a "recommendation" that the paper containing the announcement of the selection of a given specimen as the neotype of a species should itself contain as full a description as possible of the specimen in question, together with illustrations of the specimen and of its component structures.

It has been frequently assumed in discussion that, even if the concept of neotype were to be officially recognized in the *Règles*, the establishment of a neotype would be permissible only (1) in the case of a nominal species for which a holotype was designated by the original author, when that holotype had been lost or destroyed, and (2) in the case of a nominal species established upon the basis of syntypes (i.e. without a holotype), when all of the syntype material had similarly disappeared. In general, it would, no doubt, only be in such circumstances that there would be any call for the establishment of a neotype but this would not always be so. To take first the case of a nominal species established with a holotype, it would clearly only be in quite exceptional circumstances that the grant of official recognition to a neotype would be justified if the holotype were still in existence. The purpose of a neotype is to render possible the definite identification of a given nominal species and to permit, where necessary, of more detailed examination of structure than that described by the original author. It sometimes happens that a holotype is in such bad condition or is so incomplete as to render it incapable of serving either of these purposes: in the case of a living species, say, an insect, the abdomen (and, therefore, the genital armature) may have been broken off; in the case of a fossil species, the fossil may be only a fragmentary cast containing no trace of the internal structure. In either case, the holotype is useless as a means for further study and for all practical purposes the nominal species lacks any effective type specimen. Similarly,

where a species is established upon the basis of syntypes, the material may be in such bad condition that the selecion of a lectotype provides no effective assistance in the identification or further study of the species. Where the position is that there was originally a holotype but that that specimen has been lost or destroyed, there may be surviving paratypes but such specimens, unlike syntypes, never possess any nomenclatorial status and it would therefore clearly be wrong to prohibit the establishment of a neotype in such a case; it would depend on circumstances whether or not a surviving paratype would be an appropriate specimen to choose as a neotype; such specimens might be in too poor a state of preservation to make them suitable as neotypes. Moreover, paratypes (as is well known) are not always referable to the same subspecies—or even to the same species— as that which formed the basis for the description of the nominal species in question. Clearly, in such a case, the choice of a paratype to be the neotype would be most unsuitable. Syntypes have a stronger claim for selection as neotypes, since any syntype can be selected to be the lectotype of a species. In most cases a syntype should certainly be chosen to be the lectotype of a species in preference to the establishment of a neotype, but this would sometimes be open to objection, for, like paratypes, syntypes may sometimes be in very bad condition or, through an error of identification on the part of the original author, may be referable to a different species. These considerations lead inevitably to the following conclusions: (1) that, other things being equal, it is desirable that neotypes should not be established if any of the original type material is still in existance, (2) that in certain circumstances even the existence of a holotype or of a lectotype should not constitute an insuperable bar to the establishment of a neotype, (3) that safeguards of an exceptionally rigorous character would need to be imposed before any status was accorded to a neotype if any of the original type material is known still to be in existence. In the more critical cases, e.g. where it is desired to establish a neotype, notwithstanding the existence of a holotype or lectotype, it would clearly not be possible to lay down in the *Règles* themselves the circumstances in which the establishment of a neotype would be justified. The only possible course would be to provide for such cases to be dealt with *ad hoc* on their merits by the International Commission. Wherever it was known that any type material was in existence, it would clearly be necessary for the case to be referred to the Commission for the purpose of validating the proposed designation of a neotype by a decision depriving the surviving type material of its status as such. It would be a matter for consideration whether the *Règles* should provide for the automatic degrading of the surviving type material

in such circumstances or whether it should be left to the Commission to take a decision in this sense in each case submitted.

The recognition of neotypes might involve also problems of quite a different order, namely questions relating to propriety of conduct. For even if (as has been suggested) the risk of commercial exploitation were to be eliminated by a condition that no specimen is to be given the status of a neotype unless it is preserved in a museum or other public institution, the wide diversity of standing of museums and comparable public institutions and the impossibility of devising, for inclusion in the *Règles*, a formula which would exclude undesirable and irresponsible institutions, while admitting all those of high standing, would mean that there would be a constant risk that the less responsible institutions might be tempted to enter into competition in the establishment of neotypes. Again, it would be a matter for consideration whether in any circumstances particular institutions should be given an opportunity to establish a neotype for some particular species—rather on the lines of the provision relating to the replacement of junior homonyms laid down in the Code of Ethics—before a neotype is established for that species in some other institution; examples of the kind of case which it might be considered should be dealt with in this way are provided by cases where the holotype, lectotype or syntypes of a given species were formerly in the collection of a given institution but were later destroyed by military action (e.g. air attack) or by accident (e.g. in a fire). It would be possible to include in the *Règles* a "Recommendation" dealing with this subject but this would fall far short of providing a definite safeguard. That could be secured only by extending to such cases the duty already imposed on the Commission of suppressing names created as the result of a deliberate misuse of the provisions relating to homonyms or by a provision under which the power to establish neotypes was confined to the Commission.

A further question which will require careful consideration is whether a neotype must in all circumstances be also a topotype, i.e. whether, in order to be eligible for selection as a neotype, the specimen proposed so to be selected must, if a representative of a living species, have been taken in the same locality or, in the case of a parasitic species, on the same host species, as the type locality or type host of the species concerned, and, in the case of a fossil species, must have been found both in the type locality and in the same stratigraphical zone as the species in question. This consideration is naturally of particular importance in the case of polytypic species, where the type locality of the species is also the type locality of the nominotypical subspecies. Clearly, the enforcement of this condition is desirable, wherever it can be done without

rendering the selection of a neotype impracticable. Such a situation would, however, arise in the case of a local species which had become extinct through its type locality having been destroyed through building development or so altered through drainage, disafforestation, flooding or the like as no longer to be capable of maintaining a population of the species in question. Again, in the case of a fossil species, it might be impossible to obtain further topotypical material or, through the condition of the rocks in which the fossils occurred, it might be impossible to find material in a sufficiently good a state of preservation to permit of the study of internal structure, an essential condition for the selection of a neotype. These are practical considerations that have been advanced by specialists who have considered this aspect of the problem of neotypes, and it would clearly be necessary that due account should be taken of them in any provisions relating to this subject which the Congress may decide to insert in the *Règles*.

The general objectives sought to be obtained through the recognition of neotypes as a category of type specimen are perfectly clear and many of the conditions which it would be necessary to impose in regard to the selection of neotypes are such as could readily be translated into the terms of provisions to be inserted in the *Règles*. Nevertheless, as has been shown, there are aspects of this question in respect of which a certain degree of latitude would be needed if the selection, as neotypes, of the specimens most suitable for that purpose was to be rendered possible, or, in exceptional cases, if the preservation of specimens selected as neotypes and the accessibility of such specimens for further study is to be assured. For these and similar reasons, a suggestion has been put forward that, at least in the initial period (which inevitably is likely to be the most dangerous), the *Règles* should lay down the general principles to be followed in the selection of neotypes but should provide that the actual power to designate a specimen as a neotype should be confined to the International Commission, which would be required to deal with applications for the selection of neotypes on lines parallel to those laid down for the use of the Commission's plenary powers. Under such a system the Commission would be required to publish every such application in the *Bulletin of Zoological Nomenclature*, to advertise the receipt of such applications and to allow a prescribed period to elapse within which interested specialists would be able to submit comments on the action proposed, before any decision was taken on the application submitted.

There remains what is perhaps the crucial question on which a decision would need to be taken if it were decided to recognize neotypes for nomenclatorial purposes. This is what should be the

status of a neotype duly established in the belief that none of the original type material had been preserved, if at some later date some part of the original syntypic material was found to be in existence. Should the neotype retain its status as the specimen by reference to which alone any question relating to the identity of the species in question is to be determined? Or should a neotype in such circumstances lose its unique status for nomenclatorial purposes, yielding place to one of the rediscovered syntypes, on one of those specimens being selected as the lectotype? The situation which would arise in such a case would be particularly serious if it were to be found that the rediscovered syntype or syntypes were referable to a species different from that to which the neotype belonged. It seems to me that this problem could appropriately be dealt with in either of two ways: First, if the right to designate neotypes were confined to the Commission, it would be possible to include in the *Règles* a provision that the designation of a neotype automatically deprives any surviving syntypes of their status as such. Some such provision will in any case be necessary if it is decided to make provision for the designation of neotypes in cases where there is a surviving syntype or even a surviving holotype but those specimens are in such bad condition as to render them unfit to serve as an ultimate standard of reference for the determination of the species in question. The second way in which it would be possible to meet the difficulty discussed above would be to insert in the *Règles* a provision similar to that already inserted by the Congress for meeting the situation where it is found that a name has been erroneously placed on the *Official List*, that is to insert a provision laying it down that, if after a neotype has been designated, it is found that there is in existence either a syntype or the holotype, the specimen designated as the neotype is to continue to be treated as such, unless and until the Commission, on having the facts placed before it, otherwise directs.

One of the most valuable of the procedural reforms instituted by the Paris Congress was the provision that in future every decision taken by the Commission is to be recorded in an appropriate manner in a Schedule attached to the *Règles*, for this both enormously enhances the importance and status of such decisions and also greatly facilitates reference to those decisions. If it were to be decided to recognize in the *Règles* the concept of neotypes and, in particular, if it were to be decided that the right to establish neotypes should be confined to the Commission (acting on the advice of specialists), it would be necessary to consider what would be the most appropriate way in which to record those decisions after they had been promulgated in *Opinions* rendered by the Commission. In this connection it is relevant to recall that the

Commission is under instructions from the Congress to enter upon the *Official List of Specific Trivial Names in Zoology* every trivial name in respect of which it takes a decision, for under this decision the trivial name of every species for which a neotype was established by the Commission would automatically be entered on the foregoing *Official List*. The fact that a neotype had been established would be an essential feature of every such entry on the *Official List* and it will probably be felt that this entry would constitute a sufficient record of the decision taken.

We have now completed our survey of the measures already taken or at present under consideration for promoting stability in nomenclature at the species and subspecies level. I should like to emphasize that, as regards the portion of the present address in which I have discussed possible lines of new development, I have done so for the express purpose of eliciting comments from interested specialists for submission to the International Commission. In particular, comments and suggestions are desired in regard to the two subjects on which the Copenhagen Congress will be asked to take decisions, namely type localities and neotypes. Such comments should be addressed to the Secretary to the International Commission on Zoological Nomenclature, 28 Park Village East, Regent's Park, London, N.W.1, England.

To sum up, we have seen that, although further thought and further action in particular directions will be needed before a comprehensive system is evolved for the purpose of securing stability in specific nomenclature, there already exists machinery for securing effective action over a wide area of the field. The International Commission on Zoological Nomenclature is under orders from the International Congress of Zoology to do everything in its power to promote stability in zoological nomenclature, and by the prompt and vigorous action which it took in Paris in dealing with cases submitted to it, the Commission has shown itself fully conscious of its responsibilities and anxious to discharge its duties to the full. It must be recognized, however, that the extent to which the Commission can actively promote stability in nomenclature depends very largely upon the extent to which individual specialists in particular groups are themselves willing to undertake the work necessary for the submission of proposals to the Commission. Already, since the Paris Congress, three leading specialists in widely separated groups have laid before the Commission proposals for the addition to the *Official List of Generic Names in Zoology* and to the *Official List of Specific Trivial Names in Zoology* of substantial numbers of names: Dr. Hermann Gisin of Geneva in relation to names in the Order Collembola (Class Insecta), Mr. A. E. Ellis of Epsom in relation to the names of non-marine Gastropoda and

Pelecypoda, Dr. W. J. Arkell, F.R.S., in relation to the names of ammonites (Class Cephalopoda). These applications were published in 1951 in volume 4 of the *Bulletin of Zoological Nomenclature* (pp. 56-58, 119-128, and 224-233 respectively). In addition, an important contribution in regard to Brachiopod names has recently been received from Dr. Helen Muir-Wood of the British Museum (Natural History). If specialists in other groups will follow the examples thus set—and the Commission will gladly assist by giving advice as to the particulars required and the form of application desired—we may fairly hope that within a reasonable period of time a large measure of stability will have been attained both in generic and specific nomenclature and an end put to the constant changing of names which has been proceeding steadily ever since Linnean times, which has involved an immense waste of time and effort in fruitless bibliographical investigations and which has thus so seriously impeded the development of zoological science.

(*Continued from inside front cover*)

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